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is noted that a patrol boat has been placed on Lake Klamath, Oregon.

The American Museum Journal for February records the receipt of two specimens of the rare Haitian *Solenodon*, heretofore known from a single specimen sent to St. Petersburg in 1833. It is stated that only five specimens of the Cuban *Solenodon* have found their way to museums, but are there not more than this? There are notes on "An Archeological Reconnaissance in Wyoming" and on new or rare minerals added to the collection.

The Bulletin of the Charleston Museum for January contains the report of the director for 1907, which states that the main changes in the new museum building are nearly completed. An appeal is made for more funds, which are very much needed, not merely for the extension of work, but for the proper care and exhibition of material already in hand.

The Museum News of the Brooklyn Institute for February has articles on "Insects and Arachnids as Carriers of Disease," "Zuni Weapons and Hunting the Matamata." It notes the acquisition of the collection of shells made by the late Charles A. Dayton, which comprises 3,700 species. This with collections already received gives this museum an unusually fine series of mollusks. It is noted that the library has been moved to larger quarters in the new wing recently opened.

The Plant World for February opens with an article by Dr. G. H. Shull on the aims and methods of pedigree-cultures, in which a detailed description is given of the technique of pure-bred and sterilized cultures. The authors of various criticisms upon this method of study of heredity will be surprised to learn that such cultures not only do not isolate the species being tested, but bring numbers of nearly related forms into close proximity under conditions which permit their inter-reactions to be exactly estimated. Dr. D. T. MacDougal discusses the principal features of the problems in genetics and botany which may be attacked with greatest hope of success in the desert and the use of

xerophytic forms. The structural and physiological relations of forms known as adaptations are being taken up basally at the Desert Laboratory and its mountain stations.

SOCIETIES AND ACADEMIES

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

THE 643d meeting of the society was held at Hubbard Memorial Hall on January 18, 1908, President Bauer in the chair. The meeting was devoted exclusively to hearing addresses commemorative of the life and labors of the late Lord Kelvin.

The first paper of the evening was entitled "Lord Kelvin, His Life and Works," delivered by invitation, by Professor Arthur G. Webster, of Worcester, Mass.

Dr. R. S. Woodward spoke of "Lord Kelvin's Contributions to Geophysics."

Professor Simon Newcomb told of "Lord Kelvin's Character and Personality."

By invitation, his excellency the British ambassador, Mr. James Bryce, favored the meeting with an interesting sketch of Lord Kelvin's life, bearing testimony to the simplicity of Lord Kelvin's character and the greatness of his wonderful mind.

The full text of the foregoing addresses are soon to be published as a part of *Bulletin XV*, of the Philosophical Society of Washington.

THE 644th meeting was held on February 1, 1908.

Professor C. F. Marvin gave a description of "A Universal Seismograph for Horizontal Motion," recently designed by him at the U. S. Weather Bureau. A full description of this instrument, prepared by Professor Marvin, is soon to appear in the *Monthly Weather Review*.

The second paper of the evening was presented by Professor Frank H. Bigelow upon "Relations of the Temperatures of the United States to Solar Radiation."

The natural synchronism between the variable action of the solar radiation and the terrestrial temperatures may be missed in an investigation in three ways: (1) The use of non-homogeneous data at the sun and at the

earth, (2) the application of analytic methods based on perfect periods for the solar variations which are only roughly periodic, (3) the omission to consider the important effects of atmospheric circulation upon the observed temperatures. The temperatures of the United States are very indirect functions of the solar radiation, depending upon transported heat more than upon direct radiation. Many years have been consumed in securing homogeneous data, but we now possess tables covering the interval from 1872 to 1905 for the solar prominence frequencies, the European horizontal magnetic force, the temperatures, vapor pressures and barometric pressures of the United States, comprising more than one hundred stations. The monthly means were in all cases computed from the daily values reduced to homogeneous conditions for the interval. This paper refers only to the variations of the annual means of the several elements, and these are separated into two portions by eliminating the short period ordinates of about three years from the long period ordinates of about eleven years. The result is approximately as follows: Referring to an earlier paper, it was shown there that the temperatures in the tropics vary directly, but in the temperate zones inversely, with the solar prominence frequencies, and that the pressures of the eastern hemisphere vary directly, but of the western hemisphere inversely, as a general rule. In this paper it is shown that these rules hold good in the United States, with certain local modifications due to the general circulation of the atmosphere. In the Pacific states the synchronism of the temperatures is direct, while east of the Rocky Mountains it is inverse. The eleven-year period is well defined in the Pacific States, but is nearly wiped out by the circulation east of the mountains. The three-year period persists in each district, but a partial inversion and a lag of a few months is indicated east of the Rocky Mountains. These and other similar results are the direct products of circulation, since the California district is really a part of the system of the tropics, because the high-pressure belt crosses the United States from Florida to Oregon,

and thence passes southwestward. These inversions are naturally connected with the general circulation. An increase in solar radiation, inferred from an increase in the number of the solar prominences and the strength of the magnetic field, causes increase of temperature and circulation in the tropic zone, but a decrease of the temperature in the middle latitudes because the *return* currents from the polar zones bring an excess of cold high areas into the United States. The temperature for a given year in a given locality is due to the transported heat primarily, which rather remotely depends upon the prevailing radiation. Aside from the great difficulty of securing homogeneous tables of the solar radiation by observations with the pyrheliometer, on account of the difficulty of eliminating the local absorptions due to the meteorological conditions of the atmosphere above the station, it is yet more difficult to make allowances for the effect of circulation. The statistical method of recording the facts must be pursued without interruption for many years, and then this historical record will gradually build up laws which will have a practical value in seasonal forecasts. The U. S. Weather Bureau now possesses a set of homogeneous records covering one third of a century, and all its observations are now made so as to continue these synchronous data in a perfectly automatic manner.

R. L. FARIS,
Secretary

THE CHEMICAL SOCIETY OF WASHINGTON

At the twenty-fourth annual meeting of the Washington Section of the American Chemical Society, held at the Cosmos Club, Thursday, January 9, the following papers were read: "The Detection of Thickeners in Ice-cream," by Professor G. E. Patrick, and "The Three Component System CuO , SO_3 , H_2O ," by J. M. Bell and W. C. Tabor.

The following officers were elected:

President—Joseph S. Chamberlain.
First Vice-president—P. H. Walker.
Second Vice-president—G. H. Failyer.
Secretary—J. A. LeClere.
Treasurer—F. P. Dewey.

The executive committee consists of the officers and the following gentlemen, who were also elected: E. T. Allen, A. Seidell, E. A. Hill and S. S. Voorhees.

W. W. Skinner was appointed chairman of the committee on communications.

J. A. LeCLERC,
Secretary

DISCUSSION AND CORRESPONDENCE

IS ALABAMORNIS A BIRD?

A LITTLE more than a year ago Dr. Abel published a brief paper, taking the ground that the bones described by me in 1900 as the pelvic girdle of *Zeuglodon* were really the coracoids of a gigantic bird, possibly allied to *Gastornis* and, distantly, to *Anthropornis*. In reviewing this paper I said that it "seemed so clear and convincing that this conclusion was at once accepted, . . . but it became evident that if they (the bones) were the coracoids of a bird, that bird was extraordinary, if not exceptional in many particulars"; it was therefore decided to say nothing more until the bones could be reexamined. It has been impossible for me to do this, but Mr. C. W. Gilmore has kindly examined them for me and corroborated my remembrance of certain details. It is rather difficult to discuss the question without figures, but a description of the bones taken by me for *ossa innominata* must suffice for the present. One is perfect, save for the loss of a few millimeters on one process; the other has lost the posterior, or proximal, end if it is a coracoid, but the anterior end is perfect, which in this case is an all-important fact. Close by the anterior end is a good-sized cavity, precisely like an acetabulum, and this is *the only articular surface* present; what Dr. Abel considers the glenoid fossa is simply a notch, *not* an articulation. The length of the complete bone is 245 mm., 9½ in., and the bones are flattened, but not crushed or distorted.

If we adopt Dr. Abel's view that the bone is a coracoid we are confronted with the following extraordinary conditions: the precoracoid process is longer than the acrocoracoid, Dr. Abel's processus furcularis, and the acrocoracoid aborted, being reduced to a low,

rounded mass of bone, without articular faces of any kind. The articulation of the scapula with the coracoid would be by means of a ball-and-socket joint and, were a humerus present, it would rest against the anterior end of the coracoid, with nothing in advance of the shoulder joint. For, it must be repeated, the anterior end of the bone, be it pelvis or coracoid, is absolutely complete, save a chip off the point of the "precoracoid"; it was never any longer. Then, too, the proximal end of the alleged coracoid is thin and narrow, whereas the coracoid in all other birds, and particularly in flightless birds, is expanded where it articulates with the sternum. Finally the texture of the bone is dense and not bird-like.

If the bones are the coracoids of a bird they represent a type of shoulder girdle entirely different from any with which we are at present acquainted, and the bird from which they come not only belongs to a new species and genus, but to a new order or superorder.

There is not the slightest resemblance between the bone named by Dr. Abel *Alabamornis* and the coracoid of *Anthropornis* which is a perfectly normal avian coracoid; nor is there any resemblance between it and the coracoid of *Gastornis*, which is long and slender, the only peculiarity being that it belongs to a degenerate shoulder girdle and its characters are not sharply defined.

Dr. Abel's surmise that *Diatryma* and *Alabamornis* may be one and the same is best answered by noting that not only are the bones separated by many hundred miles of space, but that one comes from the Lower Eocene, Wasatch, the other from the Upper Eocene, Jacksonian. Now, I will not insist that the bones under discussion represent the pelvis of *zeuglodon* nor deny that they are the coracoids of a bird; I will simply say that it seems to me doubtful that this last ascription is correct and wait for further discoveries to throw more light on the problem. F. A. LUCAS

CLADODUS COMPRESSUS, A CORRECTION

IN the Thirtieth Annual Report of the Indiana Department of Geology and Natural Resources, page 1378, I named a new species